

*Please return to
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June 14, 1976.

MEMORANDUM TO: Faculty Members in Science
Members of Faculty Council
- Loyola Faculty of Arts and Science
- Sir George Williams Faculty of Science
Presidents, Student Associations
Members of Senate
Members of the Board of Governors

RE: The Organization of Science at Concordia University

The attached report has been prepared at my request by Jack Bordan, Vice-Rector, Academic. In September I shall refer it, with my own comments, to the two Faculty Councils directly concerned, and to Senate, so that recommendations from those bodies on the matters raised in the report may be presented for action to the Board of Governors.

I have not yet had time to consider with the necessary care the recommendations made in this report. I am nevertheless releasing it at this time so that those primarily involved may be aware of its contents, and in the expectation that its availability over the summer will speed the process of deliberation in the fall.

It is important that decisions on the matters raised in the report be taken during the fall term, so that implementation may take place for September 1977.

A handwritten signature in black ink, appearing to read "J. W. O'Brien".

J. W. O'Brien,
Rector & Vice-Chancellor.

JWB/LB
Encl.

THE ORGANIZATION OF SCIENCE AT
CONCORDIA UNIVERSITY

A REPORT TO THE RECTOR

Jack Bordan
Vice-Rector, Academic

Concordia University
May 31, 1976.

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May 31, 1976.

Dr. John W. O'Brien,
Rector and Vice-Chancellor,
Concordia University.

Dear Dr. O'Brien:

I am pleased to present to you the report on "The Future of Science at Concordia" which you asked me to prepare. The report is in the context of the document entitled "A Model for the New University"; the recommendations take account of the report of Operation Sciences Fondamentales.

While I foresee some reaction to some of my recommendations, it is my hope that the report as a whole will clarify the issues and point the way to an early decision that will prove beneficial to the University. The current uncertainty regarding the future of science at Concordia must be a deterrent to objective and necessary debate on such critical matters as the academic program, the development of research and the use of facilities.

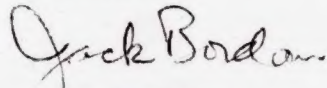
In its science departments the University has a valuable resource, both in human and material terms, which must not be wasted in unproductive confrontation. The recommendations, if accepted, should provide a framework for productive debate.

Thanks are due to the members of the science departments and of the Deans' offices, as well as to the Loyola campus student leaders, who participated in the

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series of meetings held during the last few months. Many accepted my invitation for written submissions and to them I am especially grateful. A particular acknowledgment is due to Professors Bedford and Pallen, who will recognize important elements from their submission of February 1975.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack Bordan". The signature is fluid and cursive, with a large initial "J" and a long, sweeping underline.

Jack Bordan
Vice-Rector, Academic

JB:am

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1. "A Model for the New University".

The establishment of Concordia University was, de facto, the result of a resolution passed by the Board of Trustees of Loyola College, viz:

"That the revised document 'A Model for the New University', as presented by the Joint Committee to the Board of Trustees, be adopted by the Board."¹

and of similar action taken by the Board of Governors of Sir George Williams University:

"After some discussion the document 'A Model for the New University' ... was approved".²

Both Boards accepted "A Model for the New University", or "The Merger Document" as the basis of Concordia, and it is necessary therefore to refer to that document (Appendix A) to provide background to this present report.

The Merger Document, while establishing the Loyola Faculty of Arts and Science, and the SGW Faculty of Science, stipulated that:

"Representatives of the two existing Faculties of Science will meet, as soon as possible, to recommend on the organization and operation of a single set of honours programs in Science for the new University, and will recommend on the feasibility of the establishment of a single University Faculty of Science. The Committee will report to the University Senate no later than January, 1975."

"Pending a decision of the Senate and of the Board of Governors, students may register in the Science programme and on the campus of their choice".

¹ Board of Trustees of Loyola College Resolution 72-23, November 20, 1972.

² Extract from the Minutes of the Board of Governors of Sir George Williams University, November 9, 1972.

It was established that initially the Sir George Williams Faculty of Science "... will provide majors and honours undergraduate programs, graduate programs, and ... interdisciplinary programs." and "The Loyola Faculty of Arts and Science will provide undergraduate education in Arts and Science disciplines together with ... interdisciplinary programs. ... the Science departments will offer major programs and through 1974-75 honours programs."

Allowance must be made for the fact that the legal establishment of the "New University" was delayed by about a year. The dates specified above must therefore also be adjusted by a year, and hence the report from the Science Committee to Senate should have been expected in January 1976, and Science honours programs should have been expected to continue in the Loyola Faculty of Arts and Science through 1975-76.

The latter condition of the Merger Document has certainly been met, but the report "... on the organization and operation of a single set of honours programs in Science ..." and the recommendation regarding "... the feasibility of the establishment of a single University Faculty of Science" have not materialized.

It should be noted that in the early days of Concordia the faculty in Science became involved in participating in and responding to the sectorial study called "Operation Sciences Fondamentales". In a sense it may reasonably be said that OSF displaced the internal studies called for by the governing Boards and that the OSF recommendations have now taken precedence over what might have emerged had the internal studies been made.

Finally "... the model allows the implementation, should this prove desirable, of department consolidation in Arts or Science on one or other campus, while ensuring that academic services that are judged essential are maintained on both campuses..."

2. Operation Sciences Fondamentales

The OSF report has many recommendations of interest and immediate relevance to Concordia University.

In particular, the report recommends that the present departments of Chemistry, Physics, Biology, and Mathematics merge to establish a single set of departments. OSF did not include Geology in its study; this discipline was considered in the earlier Operation Sciences Appliquées. OSA too recommended a merger of the separate departments in question. And so, the sectorial studies have recommended the merger of the departments in Science which are presently duplicated.

3. The Current Situation in Science

Science is currently organized within two Faculties - The Loyola Faculty of Arts and Science and the SGW Faculty of Science. Each Faculty includes the Science Departments of Physics, Chemistry, Mathematics, Biology; the Loyola Faculty of Arts and Science also contains Bio-physical Education and Computer Science. The duplicate departments have the characteristics shown in the table on page 4.

4. Enrollment in Science

Appendix C shows the total enrollment in Science in 1975-76. This takes into account students actually registered as "scientists" as well as students taking science courses but registered in other Faculties. Although it is more difficult than perhaps it should be to get totally reliable data on a consistent basis from year to year, the tables and charts in Appendix E provide an adequate demonstration of the situation. No attempt will be made here to provide estimates of future enrollments in science. It need simply be noted that, overall, University enrollments are expected to rise only slightly in the next few years, and then drop sharply for a few years thereafter. The science share of the total potential clientele is not likely to vary substantially from the current proportion; at least there are no reasons to believe otherwise. In consequence, this report must assume that planning for the future cannot be undertaken on the basis of major enrollment increases in Concordia science. Conversely, the recommendations which follow should not be so conservative as to

Departments	No. of FT Faculty		Average ² Years of Service		No. of Support Personnel		Research Funds ¹ Dollars		Space (to nearest 100 sq. ft.)		No. of Students		Programme Inventory	
	SG	Loy	SG	Loy	SG	Loy	SG	Loy	SG	Loy.	SG.	Loy.	SG.	Loy.
Biological Science	14		9.0		9		168,065		31,700					
Biology		10		7.10		5		34,580		14,400				
Chemistry	13		10.85		9		42,808		36,100					
Chemistry		10		9.72		6		17,905		14,600				
Geology	3		8.66		1		3,900		2,900					
Geology		4		9.0		1		875		5,600				
Mathematics	34		9.17		5		36,575		6,800					
Mathematics		10		9.4		1		2,170		1,800				
Physics	9		10.44		3		28,950		13,800					
Physics		7		10.14		2		200		7,500				
Sub total	73	41			27	15			91,300	43,900				
General (Incl. Deans Offices)	2				12				6,900					
		4*				11*				700				
TOTAL	75	45			39	26	280,298	55,730	98,200	44,600				

SEE APPENDIX C

SEE APPENDIX D

1. See Appendix B

2. Asst. Deans' years averaged in with Department of origin.

* 3 Asst. Deans)
 1 Dean)
 7 Secretaries) for both Arts & Science
 2 Technical, 1 Admin.)
 1 Professional)

provide artificial barriers to growth which may, with good academic programs, be encouraged.

The purpose of the recommendations will be to produce the best possible science education for Concordia students within available University resources. The combined resources inherited from SGWU and Loyola College must be intelligently deployed to this end.

5. Organizational Considerations at the Departmental Level

The question of organizational structure appears best approached first at the departmental level. The OSF Report concerned itself solely with that level of aggregation, and for reasons that are tolerably self-evident.

It is the considered opinion of the writer that the OSF recommendations for Physics, Chemistry, Mathematics and Biology, and the OSA recommendation on Geology, regarding the creation of single departments, one in each of the disciplines, are sound. In a series of meetings to which all full-time science faculty members of the duplicate departments were invited, no serious attempt to defend the current duplication of departments was made. Perhaps this was due to a fatalistic view of the authority of OSF and of the power of the Department of Education to enforce the recommendations. One would prefer to think that the real advantages of unified departments are in fact perceived. The establishment of single departments will require the members of each discipline to meet regularly together to articulate common goals and develop appropriate academic teaching and research programs. The post-merger attempts at dialogue between departments of the same discipline have ranged from moderate success to outright hostility. It would serve little purpose to speculate on the reasons for the overall lack of success. However, there does now seem to have emerged an acceptance of the need to work together as professional members of a scientific discipline, and under the leadership of a single Chairman in each case.

It is therefore recommended:

- Rec. 1. That the SGW Departments of Biological Sciences, Chemistry, Geology, Mathematics, and Physics be joined with the Loyola Departments of Biology, Chemistry, Geology, Mathematics and Physics, to form a single set of University Departments.

- Rec. 2. That for each of the departments so established an Advisory Committee be struck, to recommend on the appointment of a Chairman for a term of three years.
- Rec. 3. That for this occasion each Committee be made up of two Loyola and two Sir George full-time faculty members from the discipline concerned, and one student from each campus, with its chairman appointed by the Vice-Rector, Academic.
- Rec. 4. That each Committee recommend to the Vice-Rector, Academic on the appointment of a Department Chairman from among the full-time members of the merged department.

6. The Ph.D. in Physics and Chemistry

OSF, in its preliminary report, recommended that the Ph.D. programs in Physics and Chemistry be abandoned. There is no obvious basis on which to argue against this recommendation in the case of Physics. The student demand for Physics Ph.D. places is low, and can be more than adequately met by other institutions. Moreover, the research activity of both Physics Departments is not high; the SGW Department has not been successful in attracting a reasonable level of research funding, without which a Ph.D. program cannot survive.* The University cannot provide from its normal academic budget the necessary stipends to support Ph.D. students. The part-time teaching and demonstrating available is limited by the relatively low undergraduate enrollments, and in the circumstances these functions should largely be assumed by full-time faculty members. In sum, the retention of the Ph.D. program in Physics is not defensible. Accordingly, it is recommended:

- Rec. 5. That no further candidates be accepted to the Ph.D. program in Physics.

The situation in Chemistry differs sufficiently from that in Physics to justify a serious attempt to maintain

* Of the nine full-time faculty members in SGW Physics, three have held NRC grants over the years 1973-74 through 1975-76. For 1976-77, these grants have been renewed, and a fourth added. In Loyola Physics, with seven full-time faculty members, there have been no NRC grants over the recent years, but one was approved for 1976-77.

the Ph.D. program in that discipline and so it is recommended:

Rec. 6. That the Ph.D. program in Chemistry be retained.

7. Space Considerations

Concordia as a whole is demonstrably short of space, whether measured by the sense of crowding in some Faculties or by the application of the new space norms being used by the Department of Education. These norms provide the single basis on which the University can press its demands for additional space, whether by new construction or increased rental.

It is a moot point whether the norms can be applied directly at the level of an academic department; at the greater aggregated level of a Faculty they provide an indicator which must be given serious consideration. The norms, as applied by the University Planning Department, show that Commerce and Administration, Engineering, Fine Arts and SGW Arts are all short of space to a greater or lesser extent. On the other hand, SGW Science and Loyola Arts and Science, and in particular its Science component, have a substantial surplus. The experience of students, faculty members and staff of the former Faculties supports the message of the norms. The application of the norms and the subjective evaluations would appear not to match as well in the latter two Faculties. However, nobody has maintained that these Faculties need more space than they now have.

The following table gives a summary of the space situation.

<u>Academic Space</u>	<u>Sq. ft. Actual 1975-6</u>	<u>Sq. ft. Norms</u>	<u>% over/ (under) Norms</u>
All Faculties	408,700	423,000	(3.4)
SGW Science	98,200	66,500	47.7
Loyola Science	50,700	36,000	40.8
Total Science	148,900	102,500	45.3
Loyola Arts and Science	96,000	74,500	28.8
Other Faculties	214,500	282,000	(23.9)

Whether the norms are a good measure of internal space allocation or not, the fact remains that, for the University as a whole, they are the only measure, and the only hope of improving our overcrowded situation. It would follow that, for better or worse, the norms cannot be ignored. Their use internally must be with considerable judgement, but their application to some considerable extent is inevitable. *

It is exceedingly difficult to recommend in detail on the space configuration which should be provided for the merged Science departments. The internal arrangements are best left to the scientists themselves to consider and recommend to the University. It is, however, the responsibility of the University to decide on the total space to be made available, and on the relative distribution of that space between the two campuses. If the space norms are not to be applied literally, it follows that some element of judgement, to some extent arbitrary, will have to be applied.

A two-campus operation will be more space-consuming than operation on a single campus. Continuation of a two-campus presence is a strategic decision which will have its costs in efficiency and space. This report will recommend a two-campus operation in Science; on that account it must recommend that Science be assigned marginally more space than the norms will dictate. A second element must also be considered. Science enrollments are not high and will not likely see much growth. The overall scale of our science activity must be shaped by our hopes for science within the University, including a continued intensification of applied science research. The basic facilities for such research must be available or the University expectations of good performance will not be capable of realization. On this account then too, one should assign more space than the norms indicate on the basis of simple student numbers. Finally, one must consider the current particular facilities in moving toward rationalization. The Hall Building laboratories provide

* A simulation of space requirements, by the SGW Faculty of Science, concludes that the surplus of SGW Science space is only 2.1% above the norms. Regrettably, the University is not free to accept the validity of all of the parameters used in that simulation, since some disagree substantially with those defined for the University system by the Department of Education. It should perhaps be added that the Government norms are not a uniquely Quebec invention - they are based on studies of usage elsewhere in Canada and the United States.

a good research environment in Biology and Chemistry, and to a less specialized extent, in Physics. Reducing the overall Science space while simultaneously duplicating research facilities on both campuses is not feasible. It follows then that the principal research activities of the merged Departments of Biology and Chemistry must be carried out where the best facilities exist, in the Hall Building. For Physics, the case is less clear, and it may well be desirable to move the research activity of the SGW Physicists to the Loyola campus, in order that the overall Science space on the SGW campus can be adequately reduced. The Geology facilities are superior on the Loyola campus, and Geology specialization must make full use of those facilities.

The space currently available to the SGW Department of Mathematics is inadequate for the range of undergraduate and particularly graduate activities presently under way. The views of the faculty in this case, match the calculations of the Planning Department based on the norms. (The norms appear to work well for departments short of space, they appear to those with more than enough space as being simply arbitrary technocratic devices; some sort of relativity theory at work here!)

The writer is led then to the following set of recommendations:

- Rec. 7. That the overall space assigned to Science be established at 120% of the norm, i.e. reduced to 123,000 sq. ft. That the reduction (of about 26,000 sq. ft.) be primarily on the SGW campus, where the shortage for the other Faculties is felt most acutely.
- Rec. 8. That research and graduate programs in Biology and Chemistry be concentrated in the Hall Building.
- Rec. 9. That the day undergraduate programs in Geology and Physics be concentrated on the Loyola campus.
- Rec.10. That some evening and service courses in Physics and Geology continue to be available on the SGW campus along with essential, non transferable, specialized research facilities in Physics.

Rec. 11. That the graduate and research programs in Physics be moved to the Loyola campus to the extent that, and as soon as, facilities can be organized to that end.

Rec. 12. That the merged Department of Mathematics be provided with adequate space for its undergraduate and graduate mission, preferably on the Loyola campus, and within the total assigned space in Rec. 7.

The writer has received some expressions of concern about the possible decrease in enrollment in Geology and Physics were the undergraduate programs to be moved to the Loyola campus. One can only speculate on whether a decrease will result. The cause and effect relation between living and studying downtown is not at all clear; likewise the question "would you like to move to the other campus?" is almost on a par with "when have you stopped beating your wife?". The enrollment in Physics and Geology, at the University level, is not sufficient to justify two principal centres of activity for those departments. A decision must be taken to consolidate. The writer believes in the present merit of providing the full range of undergraduate programs in Science on the Loyola campus as well as a full range of undergraduate programs in the disciplines of higher enrollment - Biology, Chemistry and Mathematics - on the Sir George Williams campus. In the longer run, should a major shift in disciplinary interest occur, the Science group will have to consider the consequences of multi-campus operation in the light of the data then available, and the University will be obliged, then as now, to play its role in space assignments.

8. Computer Science

The Loyola Faculty of Arts and Science currently includes a Department of Computer Science with a variety of first cycle programs. The University Faculty of Engineering is the administrative unit which houses the Department of Computer Science which offers the B. Comp. Sc. degree and the M. Comp. Sc. degree, with a proposal for a Ph.D. program before the Board of Graduate Studies. This Department was established with the support of three special grants received from the Provincial Government, one for the B. Comp. Sc. and two for the M. Comp. Sc., and is part of one of the defined "Grands Axes" of Concordia.

The question of the number of departments of Computer Science in Concordia has been debated at Senate and the Board of Governors. At its meeting of May 9, 1974, the Board decided to postpone a decision until the Spring of 1975 and to ask Senate to study and report to the Board on the matter. On May 24, 1974, Senate established an ad hoc committee "to set out as completely as possible the arguments both for and against the various forms of control over programs and policy for Computer Science". (See Appendix F).

The Committee has deliberated for two years but has not yet submitted its report. In consequence, this present report cannot evade recommending on the question. The basic characteristics of the two departments are set out in Appendix F.

In addition to providing a selection of courses of interest and use to students in Arts and Science on the Loyola campus, the Loyola Department plays a significant service role for the Faculty of Commerce and Administration on that campus. Indeed, it would appear that its major thrust and interest has been in the "Commerce-user" area. The Faculty of Commerce and Administration has continuing need of courses and programs in its area of interest. The students in Arts and Science have a right to choose Computer Science courses which support the particular Arts and Science programs available on the Loyola campus. Both these needs can be fully met by a judicious regrouping of the courses and faculty members of the Loyola Computer Science Department, and in a manner that will provide appropriate longer range career paths for the faculty members concerned. It is accordingly recommended:

- Rec. 13. That the Commerce component of the Loyola Computer Science offerings be transferred to the Faculty of Commerce & Administration.
- Rec. 14. That the Department of Computer Science in the University Faculty of Engineering be instructed to provide the appropriate range of courses, on the Loyola campus, to students in Arts and in Science.
- Rec. 15. That the members of the faculty of the Loyola Department of Computer Science become members of the Faculty of Commerce and Administration, or of the Department of Computer Science in the Engineering Faculty, as the case may be, in accordance with the primary interest of each of the faculty members concerned.

9. The Faculty Level

With a set of single departments established, the question of departmental groupings at the Faculty level remains to be considered. The answer here is not particularly obvious. The Merger Document talks of studying the feasibility of a single Science Faculty. There should be no doubt that a single Science Faculty at Concordia is indeed feasible, but is it the only Faculty arrangement which is?

Loyola College first established separate Arts and Science Faculties in 1943, and continued that academic structure until the creation of the "New University". Sir George Williams created its separate Faculties of Arts and Science in 1963. The Loyola separate structures thus preceded those of SGW by twenty years.

The results of a questionnaire distributed to members of the Departments of Biology, Chemistry, Geology, Mathematics and Physics on both campuses show that 80% of the 35 Loyola returns were in favour of an Arts and Science configuration whereas 95% of the 60 SGW returns were in favour of a separate Science Faculty. Overall the ratio of returns in favour of a separate Science Faculty were 2.06 to 1.

It is argued that the concept of Arts and Science within a single Faculty is a matter of fundamental importance rather than just of organizational convenience. (See Appendix G). Reasons given for an Arts and Science configuration relate to the potential for devising innovative programs which might otherwise be inhibited, as well as the positive interactive effects between faculty members of Science and Arts disciplines meeting in a single council. Loyola Arts and Science, as a Faculty, has not been in existence long enough to have produced program evidence of "Arts and Science" as a concept, a philosophy, different from that which might exist in separate Arts and Science Faculties. The attempt appears to have been made - it has simply not yet had the time to demonstrate its success.

Science can surely exist, and prosper, whether as a separate Faculty or as a set of departments within a Faculty of Arts and Science. Examples of both models abound. (Appendix H). At about the time that McGill University split its Faculty of Arts and Science into two separate Faculties for reasons that one must assume were valid, the Université de Montréal joined

its Faculties into a single Faculté des Arts et Sciences for reasons which one must assume were also valid.

In both Sir George Williams and Loyola experience, students have traditionally been encouraged to cross Departmental and Faculty lines. McGill and SGW both offer a B.A. and a B.Sc. in Psychology. The Psychology Department on the SGW campus is in the SGW Faculty of Arts, at McGill it is in the Faculty of Science, but students in the "other" Faculty may follow the program and receive the degree of their choice, regardless of where the department of Psychology is administratively housed. The Centre for Interdisciplinary Studies in the Loyola Faculty of Arts and Science is chaired by a Chemist; in the SGW Faculty of Arts, it is chaired by a Physicist from the SGW Faculty of Science. Faculty boundaries thus do not appear, a priori, to set up boundaries to student choice or to innovation.

It is unlikely that students see a Faculty structure as particularly relevant; what concerns them is that programs exist to satisfy their needs and interests. However, faculty members are naturally concerned with the issue of Faculty structure. Is it possible to assess the effect on the potential positive values which will be reflected in curricula and in individual courses as a consequence of forcing interaction between faculty members in the Science and Arts disciplines? Such interaction currently exists in social settings. It is argued that interaction in committee and council rather than dining room and bar is having a desirable effect on members of the Loyola Faculty of Arts and Science.

The writer's intuitive response to the argument is very positive, and almost sufficient to cause him to recommend that Loyola Arts and Science be given the responsibility for all of Science on both campuses at Concordia. However, there remains a concern which must be expressed and weighed before a decision is finally taken. Loyola Arts and Science has not been heavily engaged in science research, nor has it had the responsibility for managing graduate programs. Can it be given the organizational structure necessary to assume these important functions? The SGW Faculty of Science has had many problems in accommodating to the current reality in those areas and has learned many lessons from its efforts to do so. Can the

lessons so learned be readily transposed to the necessarily less homogeneous environment in an Arts and Science Faculty?

Despite the concern expressed above, the writer finds the notion of a Faculty of Arts and Science, with headquarters on the Loyola campus, and responsible for all of Science at Concordia, extremely attractive. Either this model or a University Faculty of Science can be made to work.

Accordingly, it is recommended that the Rector consider the following alternative models for Science at Concordia:

- Rec. 16 (a) That a single University Faculty of Science, with its own Council and Dean be established;
- or (b) That the Loyola Faculty of Arts and Science, consisting of the current Loyola Departments in Arts and Bio-physical Education, and of the University Departments in Biology, Chemistry, Geology, Mathematics and Physics, be given the responsibility for science on both campuses.
- Rec. 17 (a) That, should Recommendation 16 (a) be adopted, a Faculty Dean be chosen upon recommendation of a Search Committee, established for this occasion with an equal membership of Loyola and Sir George Williams Science faculty members, and an equal number of students from each campus, and that the Committee be instructed to search widely, both inside and outside the University, for a suitable candidate.

Should, instead, Recommendation 16 (b) be adopted, then a special set of considerations intervene. The task of melding the current Science Departments into a productive and viable single set of Departments will place particularly heavy responsibilities on the Dean's Office. There is, in general, no a priori reason why a Faculty of Arts and Science must be presided over by a Dean who is a Scientist. In the current circumstances, however, the particular situation calls for strong scientific leadership with research and graduate studies experience. This might be met by the choice of a new Dean, with the restriction that he be a Scientist, or by the establishment of the post of

Associate Dean for Science for the Loyola Faculty of Arts and Science. Were the latter option to be preferred, it should be without prejudice to the future organizational arrangements which the Faculty and the Dean might wish to evolve.

Rec. 17 (b) That should Recommendation 16 (b) be adopted, the Rector give special consideration to the preceding paragraph.

10. Excellence in Undergraduate Science?

Operation Sciences Fondamentales, on page 93 of its main report, noted rather forcefully that in all the submissions it received, no university seemed to covet a reputation for offering above all an undergraduate program of the highest quality. OSF went on to suggest that there must surely be some institutions in Quebec that seek in one or other of the Science disciplines to excel chiefly at the undergraduate level.

Cahier IV of the Conseil des Universités report entitled Perspective 1976 picked up a related subject in its comments on this University (p. 287). It noted that, Concordia, though largely based on the Arts and Sciences, does not have an 'axe' in these disciplines, and it then made the following suggestion:

"It would be desirable, at least for internal planning purposes, that Concordia identify several areas in the vast sector of Arts and Science that it intends to develop in particular."

Surely, whatever the specific disciplinary developments we may plan or foster, there is one broader mission that arises very naturally from the traditions received from both Loyola and Sir George Williams - the provision of the very best in undergraduate education. To strive for less would be folly; to reach for what is clearly unattainable at this time could well prove suicidal. This in no way precludes the offering of appropriate graduate programs or the development of research, properly funded from outside sources; good research is being well funded now in some departments. Concordia scientists supported by a rational allocation of space and needed facilities, will ensure that the research which reflects their professional interests continues to benefit the academic programs to which it must be related.

11. Obiter Dictum

The writer is aware that serious debate is now underway in the SGW Faculty of Arts on the future of that Faculty and on the role of Arts education in general. There appears to be at least some agreement that Concordia cannot continue indefinitely with two sets of Arts Departments. The subject of merging the Loyola and Sir George Williams departments into a single Faculty of Arts or of Arts and Science is beyond the mandate of the writer. The subject of this report, however, begs the obvious question. It is, therefore, recommended:

Rec. 18. That the Rector give early consideration to the question raised by the existence of duplicate Arts departments.

JB:am

A Model for the New University

I Introduction

In keeping with the guidelines approved last March by the Board of Governors of Sir George Williams University and the Board of Trustees of Loyola College, the model the Joint Committee proposes is designed to preserve the educational traditions of both institutions that prove academically valuable while creating a financially viable member of the Quebec university system. The Joint Committee believes that it will offer excellent opportunities for imaginative development, and thereby serve not only the large present student clientèle of the two present institutions, day and evening, but also the future needs in higher education of the English-speaking people of Quebec.

II The New University

The new University will be established under the existing university charter on the two present campuses. It will take its place as a member of the Quebec university system and participate in the ongoing evolution of that system.

III The Board of Governors

The Board of Governors will have 35 members, and be formed initially as follows:

- 1) The Chancellor; the Rector; the Vice-Rector, Academic; the Vice-Rector, Administration and Finance; the President of the Graduate Students Association - 5 members

- 2) Eight members who shall be nominated by the Nominating Committee of the Board of Governors from the community at large; four members of the faculty who shall be nominated by University Council; one member who shall be nominated by the Board of Directors of the Association of Alumni; the President of the Day Students Association; the President of the Evening Students Association - all from Sir George Williams University - 15 members
- 3) Eight members from the community at large who shall be nominated as the Board of Trustees may direct; four members of the faculty who shall be nominated as the Board of Trustees may direct; one alumnus; two students - all from Loyola College - 15 members

There will be no designated YMCA or Jesuit members of the Board, but consideration will be given to these groups in the nominating of members at large and of the representatives of the Loyola faculty.

Once the new Board has been established as above, nominations of the members from the community at large will be the responsibility of the Nominating Committee of the Board; procedures for the nomination of the faculty representatives will be the responsibility of the Senate; the Alumni and student representatives will be nominated by the Alumni and student organizations as they exist at the time such nominations are required.

IV The Chief Executive Officer

The Chief Executive Officer of the new University will be the Rector.

V The Faculties

The new University will have five Faculties. There will be two University Faculties, Commerce and Administration, and Engineering; two Sir George Williams Faculties, Arts and Science; and a Loyola Faculty of Arts and Science. Each Faculty will have its Faculty Council, chaired by the Dean.

The University Faculties of Commerce and Administration and of Engineering will provide undergraduate and graduate programs, including major, honours, and interdisciplinary programs as appropriate.

The Sir George Williams Faculties of Arts and Science will provide major and honours undergraduate programs, graduate programs, and an appropriate range of interdisciplinary programs.

The Loyola Faculty of Arts and Science will provide undergraduate education in Arts and Science disciplines together with an appropriate range of interdisciplinary programs. The Arts departments will offer both honours and major programs; the Science departments will offer major programs, and through 1974-75 honours programs.

Representatives of the two existing Faculties of Science will meet, as soon as possible, to recommend on the organization and operation of a single set of honours programs in Science for the new University, and will recommend on the feasibility of the establishment of a single University Faculty of Science. The Committee will report to the University Senate no later than January, 1975.

Pending a decision of the Senate and of the Board of Governors, students may register in the Science program and on the campus of their choice.

The University Faculties of Commerce and Administration and of Engineering will provide necessary components for both departmental and interdisciplinary programs.

The full-time teaching faculty of the University Faculty of Engineering will be composed of the present full-time teaching faculty of the two institutions. The University Faculty may offer courses on both campuses where appropriate in response to student needs. In 1973-74 all Engineering students will be enrolled in the programs of the University Faculty. Representatives of the two existing Faculties of Engineering will meet as soon as possible to develop recommendations for the inauguration, organization and operation of the University Faculty of Engineering.

The full-time teaching faculty of the University Faculty of Commerce and Administration will be composed of the full-time teaching faculty of the two institutions. Students now enrolled in a Commerce program on either campus will be allowed a reasonable period in which to complete their degree in the program and on the campus in which they are enrolled. Further, the Commerce programs now given on the Sir George Williams and Loyola campuses will be maintained through 1974-75.

Representatives of the two existing Faculties of Commerce will meet as soon as possible to develop recommendations for the inauguration, organization and operation of the University Faculty of Commerce and Administration.

In 1974-75, the Council of the University Faculty will establish a committee to review all existing Commerce programs; it will report through the Council to Senate, making whatever recommendations it judges appropriate regarding the future programs of the University Faculty.

The University Faculty of Commerce and Administration will offer programs and courses on both campuses where appropriate in response to student needs.

Both present institutions have a tradition of providing inter-Faculty service courses. Inter-Faculty cooperation in the offering of existing programs and in the development of new programs will be maintained in the new University.

Each of the five Faculties will be responsible for both its day and its evening programs, subject to the authority of Senate.

VI Organization of Graduate Studies

While the present organization of graduate studies at Sir George Williams will be maintained as a University function, the Dean of the Loyola Faculty of Arts and Science and a member of the Loyola Faculty will be added to the present Board of Graduate Studies. This body will then constitute the University Board of Graduate Studies.

Arrangements will be made for the participation of qualified faculty and departments at Loyola in the conduct of existing graduate programs and the development of new programs.

VII The Senate

The composition of the Senate takes into account the fact that, besides the Faculties specifically designated Loyola or Sir George Williams, there will be two University Faculties composed of professors and students from the two institutions.

The Rector - Chairman

The Vice-Rector, Academic

2 Associate Vice-Rectors, Academic

The SGW Dean of Arts

The SGW Dean of Science

The Dean of the Loyola Faculty of Arts and Science

The Dean of Commerce and Administration

The Dean of Engineering

The Dean of Graduate Studies

8 professors from the SGW Faculty of Arts

3 professors from the SGW Faculty of Science

7 professors from the Loyola Faculty of Arts and Science

4 professors from the University Faculty of Commerce and

Administration (In the first term of appointment one of these will be a present member of the Loyola Faculty)

4 professors from the University Faculty of Engineering (In the first term of appointment one of these will be a present member of the Loyola Faculty)

2 day undergraduate students from the SGW Faculty of Arts

- 1 day undergraduate student from the SGW Faculty of Science
- 3 day undergraduate students from the Loyola Faculty of Arts and Science
- 1 day undergraduate student from the University Faculty of Commerce and Administration
- 1 day undergraduate student from the University Faculty of Engineering
- 6 evening undergraduate students (2 each from SGW, Loyola and the University Faculties)
- 1 graduate student
- 2 students at large

The following administrators will be non-voting members of Senate:

The University Librarian

The University Registrar

The University Dean of Students

as well as, initially, the academic administrators whose present titles are:

Assistant Vice-Principal, Academic - SGWU

Director of the Evening Division - Loyola

The voting membership of Senate will consist of 13 from the Loyola Faculty of Arts and Science; 18 from the SGW Faculties; 20 from the University Faculties or the University administration; 2 students at large.

The Senate will review its composition within five years of the establishment of the new University and make appropriate recommendations to the Board of Governors.

VIII The Academic Officers

- 1) The senior academic officer will be the Vice-Rector, Academic.
- 2) There will be two Associate Vice-Rectors, Academic, each of whom will have University-wide responsibilities.
- 3) Each Faculty will have a Dean as its senior officer. There will also be a Dean of Graduate Studies.

IX Faculty Councils

- 1) There will be no change in the composition of the Faculty Councils of the SGW Faculties of Arts and Science.
- 2) The composition of the Council of the University Faculty of Commerce and Administration will be as follows:

The Dean - Chairman

The Rector

The Vice-Rector, Academic, or his delegate

The Assistant Deans

The Chairmen of the Departments of Accountancy, Finance,
Management, Marketing, and Quantitative Methods

5 "A" Councillors - one elected by and from former SGW members
of each Department, for a two-year term

5 "B" Councillors - elected by and from former SGW members of
the Faculty, two by the Professors and Associate Professors
from among their number, and three Assistant Professors by
the Assistant Professors and full-time Lecturers, for a
three-year term

- 7 Councillors elected by and from the former Loyola members of the Faculty, for a two-year term
- 1 representative from the Economics Department of the SGW Faculty of Arts, appointed by the Chairman of the Department
- 1 representative from the Economics Department of the Loyola Faculty of Arts and Science, appointed by the Chairman of the Department
- 2 Day students, 2 Evening students, 2 Graduate students, all from SGW
- 2 Day students, 2 Evening students, all from Loyola

The following administrators will be non-voting members:

The University Librarian, or his delegate

The University Registrar, or his delegate

Elected members serving on the SGW Council at the time the Council of the University Faculty of Commerce and Administration is established will complete their terms of office as members of the new Council.

The Council will consider its composition and recommend thereon to Senate in March, 1975.

- 3) The composition of the Council of the University Faculty of Engineering will be the same as that of the existing SGW Faculty Council. However, until the end of 1974-75 that Council will be enlarged as follows:
 - a) present Loyola faculty who become members of the University Faculty of Engineering will elect three representatives;

- b) the student membership of the Council will be enlarged to provide representation to the students completing their studies under the present Loyola curriculum in Engineering in proportion to their membership in the student body of the University Faculty.
- 4) The structure of the Council of the Loyola Faculty of Arts and Science will be analogous to that of the other Faculty Councils of the new University.

X The Non-Academic Administrative Structure

The non-academic administrative structure will be based on the concept of total integration, with each service or functional unit having such senior and support staff on either or both campuses as may be appropriate.

XI Present Students

Present students of each institution will be guaranteed during a reasonable period on their own campus a course of study for the degree for which they are now enrolled. This would not preclude their taking advantage of the additional opportunities that the unification of the two institutions will open up to them.

All degrees now awarded by Sir George Williams University or by the Université de Montréal for Loyola College will be awarded by the new University.

XII Conclusion

The Joint Committee believes that the model proposed will create a dynamic institution, enabling changes to be carried through expeditiously and efficiently. Such changes may arise from operational requirements or they may reflect an increasing measure of coordinated development. For instance, the model allows the implementation, should this prove desirable, of department consolidation in Arts or Science on one or other campus, while ensuring that academic services that are judged essential are maintained on both campuses. At the same time, this model offers a solid structure within which the detailed organization of the new University can now proceed.

November 8, 1972

Joint Committee

CONCORDIA UNIVERSITY

RESEARCH FUNDING

SCIENCE

1975-76

SGW CAMPUS							LOYOLA CAMPUS					
	<u>Biological Sciences</u>	<u>Chemistry</u>	<u>Geology</u>	<u>Maths.</u>	<u>Physics</u>	<u>Total</u>	<u>Biology</u>	<u>Chemistry</u>	<u>Geology</u>	<u>Maths.</u>	<u>Physics</u>	<u>Total</u>
NRC	76,537	26,835	3,900	27,994	28,950	164,216	32,075	5,705	-	1,920	-	39,700
FCAC	8,500	-	-	5,000	-	13,500	-	-	-	-	-	-
} FCAC	2,945	2,031	-	-	-	4,976	-	-	-	-	-	-
Internal) NRC	7,665	7,665	-	-	-	15,330	200	200	-	-	-	400
} CASA	1,877	777	-	-	-	2,654	2,305	-	875	250	200	3,630
Other												
Federal Gov.	70,541	-	-	-	-	70,541	-	12,000	-	-	-	12,000
Industries	-	5,500	-	-	-	5,500	-	-	-	-	-	-
Miscellaneous	-	-	-	3,581	-	3,581	-	-	-	-	-	-
	<u>\$168,065</u>	<u>\$42,808</u>	<u>\$3,900</u>	<u>\$36,575</u>	<u>\$28,950</u>	<u>\$280,298</u>	<u>\$34,580</u>	<u>\$17,905</u>	<u>\$875</u>	<u>\$2,170</u>	<u>\$200</u>	<u>\$55,730</u>

STUDENT ENROLLMENT
1975-1976

SGW	<u>UNDERGRADUATE*</u>				<u>GRADUATE**</u>				FT & PT # Thesis and BMR
	Intro. & † Prep.	Upper Level	% of Total	TOTAL	Full-time 2d 3d cycle cycle	Part-time 2d 3d cycle cycle			
Bio Sciences	3,687	2,712	42.4	6,399	19	-	54	-	10
Mathematics	12,339	2,073	14.4	14,412	18	-	93	-	12
Chemistry	3,678	2,064	35.9	5,742	8	3	89	-	22
Physics	3,453#	577	14.3	4,030	6	-	14	3	11
Geology	339#	570	62.7	909	-	-	-	-	-
TOTAL	23,496	7,996		31,492	51	3	250	3	55

LOYOLA

Biology	4,111	2,253	35.4	6,364
Mathematics	6,634	828	11.1	7,462
Chemistry	2,805	1,782	38.8	4,587
Physics	2,000	255	11.3	2,255
Geology	474	489	50.8	963
Sub Total	16,024	5,607		21,631
Bio-phys. Ed.	1,914	3,419	64.1	5,333
Computer Sci.	4,083	1,350	24.8	5,433
TOTAL	22,021	10,376		32,397

* Student Course Credits (÷ 30 to get "FTE Students" approximately)

** Number of Students

† Includes MSP, ECP, and UI level courses, including upper year students in them.

Includes non-resident; BMR - Beyond Minimum Residence

SGW Science by category of students

	<u>Physics</u>	<u>Geology</u>
MSP	1,441	66
ECP	423	18
1st year UG	740	111
	<u>2,604</u>	<u>195</u>
Tot. Reg.	3,453	339
Difference	849	144

equals upper year student course credits

PROGRAMME INVENTORY 1975-76SGW FACULTY OF SCIENCE

Biological Sciences

Honours in Biological Sciences
 Specialization in Biological Sciences
 Major in Biological Sciences
 Major in Cell & Molecular Biology
 Major in Botany
 Major in Environmental Biology
 Major in Zoology
 Minor in Botany
 Minor in Environmental Biology
 Minor in Zoology
 Minor in Biological Sciences
 Minor in Cell & Molecular Biology
 Minor in Life Sciences
 Certificate in Scientific Measurement
 (Biology Option)

 MSc Option A (Thesis)
 MSc Option B (Teaching of Biology)

Chemistry

Honours in Chemistry
 Specialization in Analytical Chemistry
 Specialization in Biochemistry
 Specialization in Chemistry
 Major in Chemistry
 Minor in Chemistry
 Minor in Biochemistry
 Certificate in Scientific Measurement
 (Chemistry Option)

 MSc Option A (Thesis)
 MSc Option B (Teaching of Chemistry)

 Ph.D.

Geology

Major in Geology
 Major in Geology with Minor in Ecology
 Specialization in Geology
 Minor in Geology

Mathematics

BSc or BA Honours in Applied Mathematics
 BSc or BA Honours in Mathematics
 BSc or BA Honours in Statistics
 BSc or BA Specialization in Applied
 Mathematics
 BSc or BA Specialization in Mathematics
 BSc or BA Specialization in Statistics

Mathematics (Cont'd)

BSc or BA Major in Applied Mathematics
 BSc or BA Major in Mathematics
 BSc or BA Major in Statistics
 BSc or BA Minor in Mathematics
 BSc or BA Minor in Statistics
 BSc or BA Minor in Mathematics for students in Arts
 Certificate in Mathematics for Teachers (Elementary School level)
 Certificate in Mathematics for Teachers (Junior Secondary School level)

 MA/MSc Option A (Thesis)
 MA/MSc Option B (without Thesis)

 MTM Option A (Thesis)
 MTM Option B (without Thesis)

 Diploma in the Teaching of Mathematics

Physics

Honours in Physics (Experimental option)
 Honours in Physics (Theoretical option)
 Specialization in Physics (Experimental option)
 Specialization in Physics (Theoretical option)
 Specialization in Physics Marketing
 Major in Physics
 Minor in Physics
 Certificate in Scientific Measurement (Physics option)

 MSc Option A (Thesis)
 MSc Option B (without Thesis)

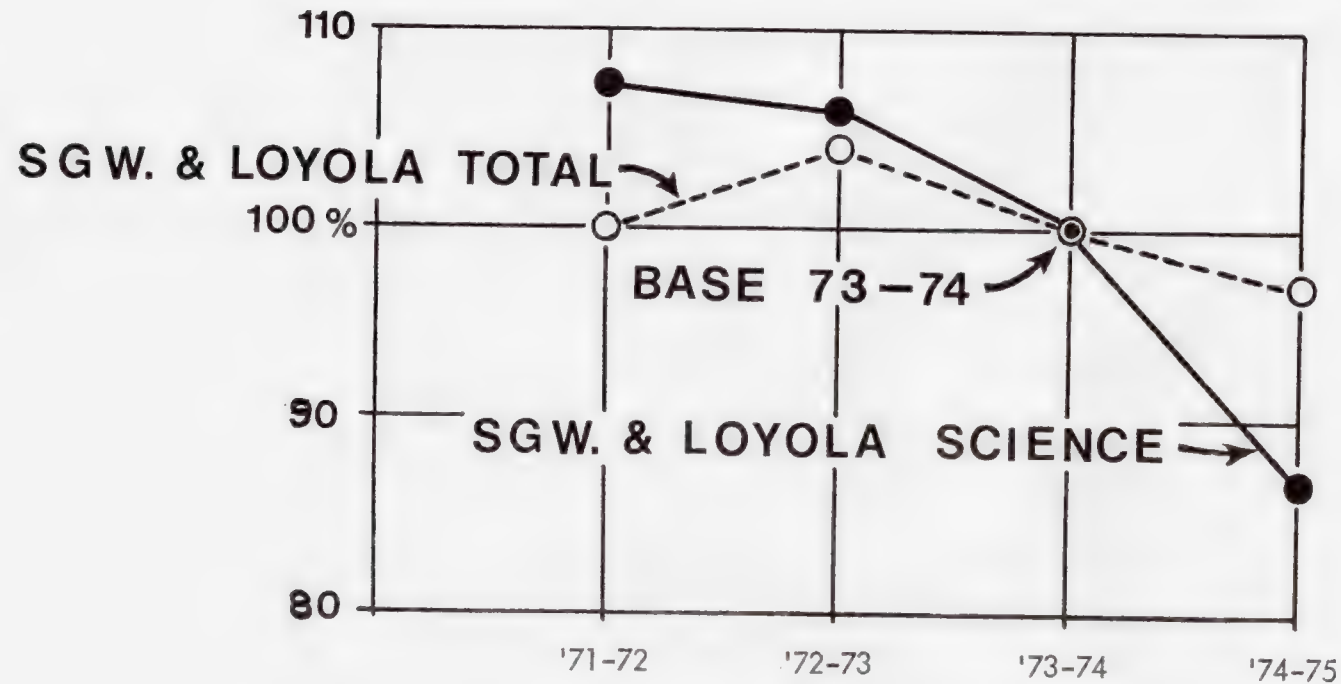
 Ph.D.

LOYOLA FACULTY OF ARTS & SCIENCE

Biology	Honours in Biology Specialization in Biology Joint Major Component - Biology Major-Minor in Biology Minor in (Science) Biology Minor in (Science) Zoology Minor in (Science) Botany Minor in (non-Science) Biology
Chemistry	Honours in Chemistry Specialization in Chemistry Specialization in Biochemistry and Medicinal Chemistry
Geology	Honours in Geology Specialization in Geology Major in Geology Minor in Geology
Mathematics	BSc or BA Honours in Mathematics BSc or BA Specialization in Mathematics BSc or BA Major in Statistics (Mathematics) BSc or BA Major in Mathematics BSc or BA Minor in Mathematics
Physics	Honours in Physics Specialization in Physics Major in Physics Minor in Physics

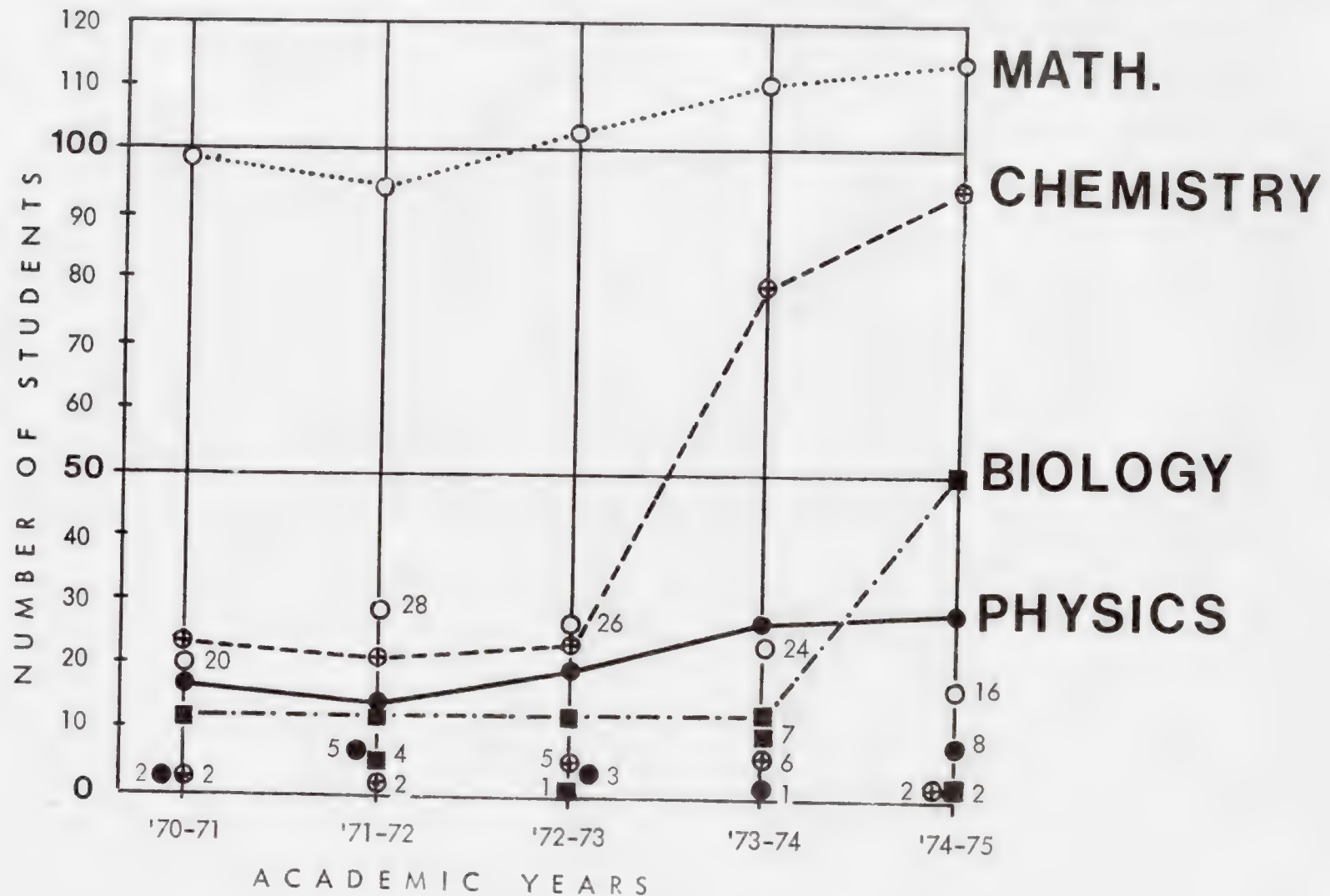
CONCORDIA UNIVERSITY

S.G.W. & LOYOLA COMBINED % CHANGE IN F.T.E. STUDENTS



CONCORDIA UNIVERSITY

MASTERS STUDENTS (S.G.W. CAMPUS) Enrollment
degrees granted o 24



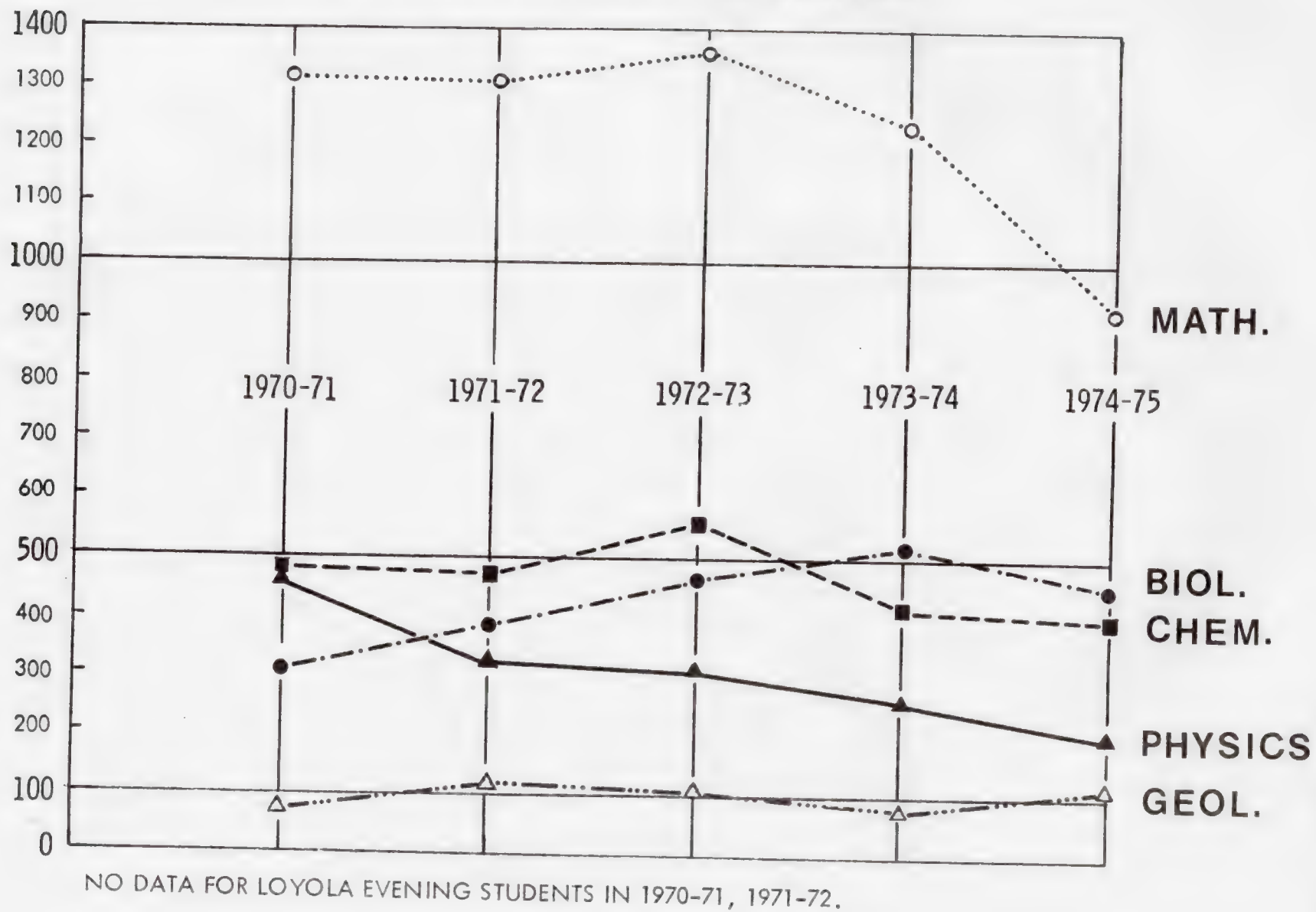
CONCORDIA UNIVERSITY

Doctoral Students

	CHEMISTRY		PHYSICS	
	Enrollment	Degrees Granted	Enrollment	Degrees Granted
1970-71	7	—	3	—
1971-72	8	—	3	—
1972-73	12	1	8	1
1973-74	9	4	11	—
1974-75	7	1	9	1

Amended, May, 1976.

SCIENCE STUDENT ENROLLMENT S.G.W. & LOYOLA COMBINED



Extract from Senate Minutes - February 22, 1974.

74-2- 9

Concerning the Computer Science Program and Courses for Concordia (Docs.-US- 74-1-D8; D8(B); D8(A); US-74-2-D5), Dr. O'Brien advised that primarily the substantive item of business is contained in document US-74-1-D8, which is headed "Principles Proposed by the Computer Science Committee of Senate in Connection with Computer Science Programmes and Courses for Concordia University". He suggested that document US-74-2-D10, which deals with Computer Science courses, and a memorandum [Doc.-US-74-2-D10(A)] concerning a few errors in the document, be set aside for the moment and considered later.

In presenting the proposals concerning Computer Science Programmes and Courses (Doc.-US-74-1-D8), Dean Callaghan, Chairman of the Computer Science Committee, reiterated that the document identifies the existing programmes and options that presently exist at Sir George Williams and Loyola, sets out a proposed revision of responsibilities between Computer Science and the Faculty of Commerce and Administration with respect to the new programmes, and it suggests new programmes for Concordia in Computer Science.

Dean Breen reported that a resolution was passed by the Loyola Arts and Science Faculty Council asking that the Dean try to find out the powers and extent of jurisdiction of the Sir George Williams Committee on Computer Science. He stated that the difficulty was that it was not known whether this was a Sir George Committee or a Concordia Committee.

Dr. O'Brien pointed out that the Computer Science Committee is a Concordia Computer Science Committee, and that it was established at the same time as the various faculty councils and similar groups of Concordia were established and that the membership consists of the Dean of the University Faculty of Engineering as Chairman; the Chairman of the Department of Computer Science of the University Faculty of Engineering; the Director of the University Computer Centre; four representatives of the Department of Computer Science of the University Faculty of Engineering; two representatives from the Faculty of Engineering; two representatives from the S.G.W.U. Faculty of Science; one representative from the S.G.W.U. Faculty of Arts; two representatives from the University Faculty of Commerce and Administration; two representatives from the Loyola Faculty of Arts and Science; one student from the Bachelor of Computer Science programme; and that until the end of 1974/75 the Committee be enlarged by the addition of a faculty member elected by the Loyola Computer Science Faculty.

74-2-10

It was moved by Dean Breen, seconded by Prof. Bordan, that the proposals concerning the Computer Science Programs and Courses (Doc.-US-74-1-D8 and US-74-2-D10) be tabled until the March 1974 meeting of Senate, and that in the meantime, a committee consisting of Dr. O'Brien, Prof. Bordan, and Fr. Malone, S.J., be set up to put together a dossier of all documents approved by the Board of Governors which have status within Concordia at the present time, and that this dossier be distributed to the members of Senate.

- motion carried -.

Extract from Senate Minutes - March 22, 1974.

74-3- 6

Dr. O'Brien advised Senate that the questions concerning Computer Science Programs have been referred to the Board of Governors and will be discussed at the next meeting of the Board. He suggested that these items be tabled. It was agreed that items V,a),1), and a), 2) and V,f), be deferred, pending discussion of the matter by the Board of Governors.

Extract from Senate Minutes - April 26, 1974.

74-4-12

Concerning the items on the agenda dealing with the Computer Science Program and Courses for Concordia University [items V a) 1); V a)2); and V a) 3)] it was reported that the Board has agreed to re-study the issues involved and has adopted the following procedures:

1. postpone a decision on the number of Departments of Computer Science in Concordia until the Spring of 1975 in order to give priority to the question of the relative merits of alternative forms of control over programs and policy;
2. request the Senate to study and report to the Board on the implications of alternative forms of control over programs and policy with respect to such questions as the kinds of options available to students, the degree of flexibility in responding to changing enrolment patterns and the effect on research;
3. request the administration to study and report to the Board on the cost implications of alternative forms of control over programs and policy;
4. ask that all reports take cognizance of Opération Science Appliquées.

74-4-13

It was moved by Dean Breen, seconded by Dean Callaghan, that item # 2 of the above procedures be referred to the Steering Committee for consideration and that the Steering Committee report back to the May meeting of Senate.

- motion carried -.

Extract from Senate Minutes - May 14, 1974.

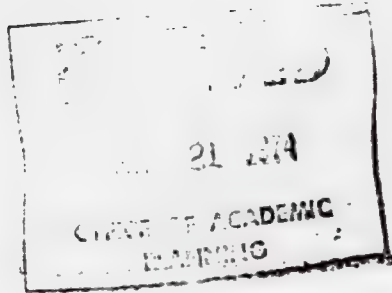
74-5-26

In presenting the report from the Steering Committee on Computer Science (Doc.-US-74-5-D4), Dr. O'Brien pointed out that it was also recommended that Dr. McDougall, Associate Vice-Rector, Academic, be Chairman of the Committee.

74-5-27

It was moved by Prof. Charlton, seconded by Prof. Norris, that the Committee be established, including Dr. McDougall as Chairman, and with the mandate set out in document US-74-5-D4.

- motion carried -.



May 14, 1974.

MEMORANDUM TO: Members of Senate

FROM: Steering Committee

RE: Computer Science.

On May 9 the Board of Governors decided to restudy the issues involved in the organization of Computer Science, and to proceed as follows:

1. postpone a decision on the number of Departments of Computer Science in Concordia until the Spring of 1975 in order to give priority to the question of the relative merits of alternative forms of control over programs and policy;
2. request the Senate to study and report to the Board on the implications of alternative forms of control over programs and policy with respect to such questions as the kinds of options available to students, the degree of flexibility in responding to changing enrolment patterns, and the effect on research;
3. request the administration to study and report to the Board on the cost implications of alternative forms of control over programs and policy;
4. ask that all reports take cognizance of Opération Sciences Appliquées.

Senate is requested to prepare a report as set out in item 2, and to do so in the light of item 4.

Steering Committee recommends to Senate that a committee be

2
/2...

established to prepare the report requested in item 2, and that the Committee be instructed to set out as completely as possible the arguments both for and against the various forms of control over programs and policy for Computer Science. The Committee is not required to recommend on the alternatives set out in its report.

Steering Committee recommends the following membership for the Committee:

- One faculty member from each Faculty, appointed by the Faculty Council
- One faculty member from each Department of Computer Science, appointed by the Department
- The Dean of the University Faculty of Engineering
- The Dean of the Loyola Faculty of Arts and Science
- Two students, one from each Department of Computer Science, appointed by the students.

Dr. D. McDaniel, 2/2/71

Steering Committee recommends that all those with proposals on forms of organization for Computer Science be asked to make them known to the Committee, so that its report can be as complete as possible.

CHARACTERISTICS OF COMPUTER SCIENCE DEPARTMENTS

	<u>No. of FT Faculty</u>	<u>Average Years of Service</u>	<u>No. of Support Person.</u>	<u>Research Funds 1975-76 Dollars</u>	<u>Space (to nearest 100 sq. ft.)</u>
SGW Campus	15	3.0	7	78,685	5,800
Loyola Campus	6	4.5	1	-	1,900.

ENROLLMENT
1975 - 1976

UNGERGRADUATE

Student Course Credits

	<u>Intro. & Preparatory</u>	<u>Upper Level</u>	<u>% of Total</u>	<u>TOTAL</u>
SGW Campus	4,758	1,996	29.6	6,754
Loyola Campus	4,083	1,350	24.8	5,433

GRADUATE

Number of Students

<u>Full-Time</u>	<u>Part-Time</u>
20	57
-	-

THE LOYOLA CONCEPT OF ARTS AND SCIENCE1. Historically:

Loyola has always been a Faculty of Arts and Science. It has conceived of its primary obligations toward its students in terms of developing a thinking person, rather than a skilled worker. In its origins, Loyola was a Jesuit College with a curriculum based on the Ratio Studiorum, which taught classical literature, French and English literature, Math, Science, Philosophy and Theology. When the Faculty of Science and Engineering was created in 1943, this view determined the profile of its curriculum: Science and Engineering students were obliged to take courses every year in Philosophy, Theology, English and French. The dosage of such humanities courses varied, but they were always considered an important factor in the education of a scientist. The same perspective determined the curriculum profile for Commerce students when that Faculty was opened in 1948. If I may quote from a document prepared for the Loyola Trustees in 1970 entitled "Loyola Operation", "Loyola argues that Bachelor level students should face honestly the ultimate questions asked by man, and master the fundamental methodologies of reflection. Consequently Loyola requires its students to study Theology and Philosophy".

Prior to the merger with Sir George, the Loyola faculties prepared their curriculum in a united Senate. It was the Senate which presided over the education and philosophy of the College. When in 1970 the three-year programme was introduced, the Senate converted this provision of Humanities courses for Science and Commerce students into the "Two-Thirds Rule". This rule, theoretically at least, obliged Science and Commerce students to take one-third of their courses outside of their Faculty. At about the same time, the obligation to take specific Humanities courses was cancelled, but a Senate committee was established to define a Humanities core which could replace these obligatory courses, and which would eventually specify the application of the "Two-Thirds Rule". In this development, it was the Arts Faculty which suffered: when the Science-Engineering Faculty was formed, Math and Science courses were attracted to it and withdrawn from the Arts offerings. Arts students continued to be introduced to the great writers and disciplines of the past. They were left largely unaided in the task of relating this heritage to the technical and scientific culture of the present. Social-Science departments offered the first bridge in providing contemporary studies of man. They have expanded consistently. The Communication Arts department presents the Humanities as expressed in contemporary technology. It flourishes. The elevation of the Interdisciplinary Studies Department to the status of Centre, and finally the creation of a unified Faculty of Arts and Science, are the most recent attempts to bridge, structurally and from a curricular point of view, between the heritage of the past (Western values) and the intellectual advances of the present.

2. Arts and Science:

What then is a Faculty of Arts and Science? It is a Faculty in which professors and administrators are committed to a liberal ideal of education in which components of both Arts and Science are believed to be intrinsic. This commitment will eventually be mirrored in the background education of professors who join the Faculty, in the strength of its Interdisciplinary programme, in the topics chosen for Faculty Seminars, and in various other social and structural realities. Most immediately, this commitment will be mirrored in a Faculty's curriculum.

In applying this to Loyola, we must realize we are dealing with students who have completed the "General Education" of the CEGEP's. For these students we must provide serious specialization, serious both in range of information and in depth or sharpness of method. On the other hand, a programme consisting of 15 courses in, for example, Mathematics is not acceptable. It will become all the less acceptable if the student goes on then to a graduate school and spends two years studying Math for an M.A., and three years for a Ph.D.: eight years to produce a Mathematical monster. In a Faculty of Arts and Science specialized programmes will consist of six or ten or even thirteen courses, and they will not differ importantly from programmes in other Quebec universities. What will be different, however, will be what is done outside the principal area of specialization.

Very few students are capable of specializing in both a Science subject and a Humanities subject at the same time. On the other hand it is possible for a student to specialize for example in English or History, and at the same time be led to assimilate scientific method, or else to specialize in a scientific discipline and be introduced to historical method. Such an introduction would require a structured series of courses, in which the student is truly brought to the core of the discipline in question, without being given the breadth of the discipline. One might suggest, for example, a series of history courses. In the first year the student might take two courses: a survey of the history of Germany, and a course in historical method. In his second year the student might take a more advanced course in a small segment of German history. In his third year the student might participate in

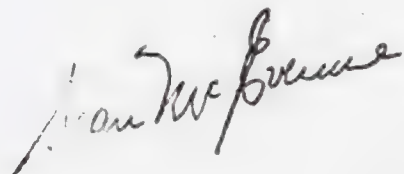
a seminar, doing research on one point within that segment. In this way the student would in no way be an historian, and yet he would have assimilated the historian's intelligence.

3. Principle of Complementarity:

It would not be true to affirm that each discipline is characterized by a single method. On the other hand it is true that certain types of programmes are centred on one method, and tend to neglect another, i.e. tend to allow one whole segment of the student's Humanity to wither. It is possible to point to basic methods of human thought, and to suggest desirable complementarities. For example, logical and speculative methods do well to be complemented by factual methods, statistical methods by those which center on the value of the unique, subjective and imaginative methods by experimental, technical, by speculative ... etc.

At Loyola, we have made the chairmen responsible for approving the programme of each student. It has always been taken for granted that Science chairmen would counsel their students in their choice of Humanities or Social Science courses. The potential of an Arts and Science Faculty will be realized only when the Social Science chairmen also counsel their students in their choice of Science or Humanities courses, and Humanities chairmen also counsel their students in their choice of Science or Social Science courses. This counselling should be based on a concept of complementarity of method. Many departments now offer or are preparing to offer a minor, specifically aimed as a service to non-specialists in the area. The minor is constructed in such a way that it introduces students specifically to method, without introducing them to the multiplicity of data in the field. Minors can serve, therefore, in this counselling. If they are well constructed, and chosen to complement the student's specialization, they should serve to make him intelligent and articulate in our Arts and Science world.

This principle of complementarity of programme does not exhaust the meaning of Arts and Science curriculum. It merely occupies centre stage at this moment of our curricular development.



February 27th, 1975.

teaching and learning

FEBRUARY 1976

Faculty of Arts & Sciences: A Philosopher's View

Dr. D. O'Connor

In attempting to set down what might be called a rational justification for a Faculty of Arts and Sciences the following points must be kept in mind:

1. In the recent past we have seen a profound change in the structure of universities¹ and a blurring of the notion of the university as a definable structure at all. In the very near future we can reliably expect that:

...the university will tend to lose its character as a place with clear geographical and intellectual boundaries, a place where one spends a definite amount of time and acquires a certain amount of knowledge.²

2. The meaning of each of the key terms to be discussed -- "Faculty", "Arts" and "Sciences" -- is obscure, and perhaps necessarily so.³ What follows therefore is largely un-systematic.
3. In talking about the Idea of a university, which idea is crucial for intelligible critical discourse concerning faculties, it must be recognized that the Idea is a regulative, normative concept. Idea, in this sense, is not identical with sets of descriptions of one or more present universities; nor is it identical with a set of descriptions concerning functions or uses present universities might be said to serve.
4. The discipline of philosophy provides no consensually validated position either for analysing or evaluating the epistemological foundations of the "Arts" or "Sciences". Nor does the discipline provide an agreed-upon doctrine of its own proper

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NUMBER 3

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place in university education. What follows, therefore, must be seen as a personal view of only one philosopher.

The university has as its chief aim the education of human beings -- the training of intellect to reason well about all matters in all contexts.⁴ Its tasks, then, are to insure the organization, dissemination and growth of knowledge of "things", in the widest possible sense of the term, and their "relations", in the widest possible sense of the term. Education is a process of differentiation, alteration and integration of perceptual and theoretical fields. The justification for the attempt to alter perceptual fields is not simply to allow persons to gradually become more realistic in their perceptions (of what's real, important, effective, etc.), but also to facilitate their becoming, at least in principle, more critically responsible in their reactions⁵ to the demands upon our intelligence and courage which are presented by the manifold complexity of the world.

To fulfill its tasks the university must develop systematically related internal structures; and it must do this regardless of how malleable its boundaries may or should be vis-a-vis other academic and non-academic institutions. By the term "Faculty" we designate the principal internal structure of the university. Other internal structures (e.g. departments, divisions, centres, etc.) are derivative in the sense that their existence and relations fall under the purview of faculties. Faculties, then, are collective, high-level ordering structures. Whereas universities may be divided in any number of different ways we shall assume that any de facto faculty is a chosen, collective structure.

The chief internal responsibilities of a faculty are two: first, to produce and implement a curriculum. Secondly, to develop relatively enduring internal structures (e.g. departments, divisions, centres, etc.) which correspond to collectively agreed-upon areas of knowledge, research, methodologies or whatever. To produce a curriculum is to provide for a multiplicity of courses which can be taken in various ways each of which has an identifiable and justifiable coherence. In this view a curriculum is a faculty's collective way of expressing which forms of perceiving, theorizing and knowing it judges to be worth sharing. Courses are ways of sharing certain "things" (i.e. insights, thoughts, methods of inquiry, perceptions, values, etc.) in very restricted situations. By insuring that courses are parts of programs of study and that programs of study have identified and justified coherence both in themselves and in relation to each other, a faculty fulfills the first of its chief responsibilities -- the production and implementation of a curriculum.⁶

In fulfilling its second main responsibility faculties must be critically responsive to the following factors: the division of knowledge into quasi-separable areas (e.g. psychology, biology, economics, politics, history, literature, etc.)⁷; the varying needs and interests of students -- particularly the need to feel grounded and well trained in specific disciplines; and the increasingly specialized training of the professoriate. Internal faculty divisions ought to reflect a collective response to the following questions: What can/should people learn/teach? What are the best ways of dividing and ordering knowing and perceiving?

If the foregoing observations have a general validity then the question of justifying or choosing a faculty structure of any particular form must revolve around a discussion of the following questions: What kind of collectivity can best guarantee the production and implementation of a curriculum which reflects

all of the major epistemological areas? If curricula are the result of critical dialogue what types of participants are required to establish the kind of dialogue needed? What forms of perceiving and theorizing must be integrated for a person to function with some high degree of competence in the contemporary world?

I do not feel that these questions suggest any self-evident answers. Indeed it is not to be supposed that these questions can be cogently discussed at present. Nor is it to be supposed that faculty councils are even willing to discuss the issues involved, much less seek resolutions. Nor is it to be supposed that universities have the autonomy to make the decisions that might follow upon such discussions. In this context it would be insane to suggest that a faculty of any given structure can guarantee the education of human beings. Still, it seems at least plausible to suggest that the type of faculty best designed to institute the necessary dialogue and insure a relatively permanent search for appropriate responses is a faculty of artists, natural scientists, physical scientists, social scientists, classicists, philosophers, theologians, linguists, mathematicians. The following observations suggest to me the plausibility of this suggestion.

Scientists, often quite despite themselves, do things (e.g. develop theories or things) which have enormous import on areas of human life and consciousness outside the epistemological boundaries of their disciplines -- e.g. effects on military or industrial effectiveness, on the politics and psychology, and even the morals, of their time.⁸ This has precipitated no little moral agonizing in the communities of physicists, chemists and particularly bio-chemists. But it is no less the case for our colleagues in mathematics and computer science who are "responsible" for the computer (and, thereby, the standardization of human affairs) which has become an absolutely essential infrastructure for everything from the functional effectiveness of large cities to university systems of education to international monetary and political systems. At the same time that all this has occurred we have seen, at a cultural level, increasingly widening gulfs between theories of fact and theories of value, between theory and praxis. Critical dialogue between scientists and their colleagues in the arts and humanities is severely threatened. If scientists remain within epistemological boundaries as they are currently understood they remain cut off, except in haphazard ways, from the kind of perspective on their age which allows them to understand their role in the human drama; they lose sight of the fact that language is not only a useful tool but also an ennobling medium. They remain professionally cut off and institutionally separated from those people in our universities who force us to recognize and cherish eloquence and beauty; from those who remind us that when knowledge loses its rootedness in the human quest for genuine community it serves a destructive capacity of unimaginable proportions. We currently produce in very large numbers scientists who by training are almost entirely incapable of assessing any of the non-epistemological consequences of their best work. We currently produce in very large numbers artists and humanists who by training are almost entirely isolated from, and profoundly alienated by, science.

It seems entirely reasonable that we expect at least our universities to address themselves to this cultural situation. It seems entirely reasonable to suggest that a proper forum is the kind of high-level structural context for discussion that a university faculty can provide. People who seek reliable knowledge and values in very different ways (through work in laboratories, libraries, archives) and who come together regularly to share what they discover develop a crucial sense of the differences as well as the complementarities of

their searching. They are thereby more astute practitioners of their distinctive methods. In this sense the only firm ground of maturity in the sciences or arts or humanities is to be surrounded by careful and respectable scholars and researchers in other areas; for maturity means more than being well-trained in a discipline -- it means being able to position oneself with respect to one's discipline both internally and externally. We must insure that our courses of study at the undergraduate level pave the way for this maturity. In my view the best way of insuring this is to develop the kind of curricular discussion which have coherence for artists, scientists and humanists. Then and only then will we produce programs of study which genuinely train the intellect of fully human beings.

FOOTNOTES

- 1 This idea is developed in C. Muscatine's "The Future of University Education as an Idea", in Knowledge and the Future of Man (ed) Walter J. Ong, S.J., Holt, Rinehart and Winston, 1968. pp. 39-54.
- 2 Op. Cit. p.43
- 3 It has been suggested recently by Peter Shrag, "The End of a Great Tradition" S.R. Feb 15, 1969, that there's little advantage to clarifying the meaning of "liberal arts" since, in any case, they are dead or dying in their liberating function because the common cultural assumptions in which they were rooted have been shattered. Whatever one may make of this conclusion Shrag's reasons for suggesting it are worthy of serious investigation.
- 4 It goes without saying that "the university" here refers to the normative ideal; the relation between this ideal and any presently instituted university is not likely a descriptive relation.
- 5 No university can guarantee success in this latter area: very well educated scoundrels exist.
- 6 It's important to note here that it is the collective context which provides the guiding principles which insure the coherence and justification of particular programs of study.
- 7 It's important to note that the so-called "division of knowledge" as well as the separating boundaries of "disciplines" are things more often assumed and asserted than justified and understood. The divisions and the boundaries are perhaps understood as very high-level artefacts.
- 8 One thinks here of the bio-chemists who, by producing "the pill", in the 1940's paved the way for the "sexual revolution" of the 1960's and 70's.

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May 14, 1976

MEMO

TO: Academic Vice Rector J. Bordan

FROM: Dr. M. G. Hogben, Director
Interdisciplinary Studies

SUBJECT: The Case for a Combined Faculty of Arts and Science

I hope this comes to you with sufficient time to allow any new thoughts to be incorporated into your position paper.

A standard determinist position in social theory argues that you cannot change the ideology of a community by direct action. Rather you change the social structure and this leads to a change in values, beliefs, etc.

The social structure in our case is easily identified as the faculty itself. Arts and Science represent the core of academic knowledge from which the vocational specialists Engineering, Commerce, Fine Arts, Medicine have splintered off. The liberal arts education everyone seems to be talking about has to be based on this core. It is this core which has become more and more fragmented. Individual specialization within the core has caused the loss of real dialogue between the disciplines with its accompanying alienation.

Reversing this trend cannot be accomplished by a selling job. The built in factors encourage further divergence. Thus it is my argument that, using the determinist model mentioned at the beginning, perhaps the only way to return to a university rather than the multiversity we labour in today is to simply change the structure of the faculty.

Loyola and Sir George Williams both represent small colleges with good physical proximity between departments. When I

arrived at Loyola in 1971 I was encouraged by the simple fact that it was easy to meet professors of disciplines far ranging from chemistry. However, when we did meet, the conversation stayed on local gossip - pay, workloads, relations with the Dean, the merger, etc. Never did we continue the dialogue in any depth into the research interests of our own. Professors did determine the area of interest of their colleagues but further dialogue was curtailed. But why was it curtailed?

My thesis is that it takes many hours of working together before faculty can establish a common language and thereby remove their protective prejudices.

It has been my experience that it has only been in the last three years or so that significant academic cross fertilization has occurred. I believe this has been generally due to committee work where sitting together after many hours of work on whatever problem is at hand (and it could be any subject, i.e. parking) we realised that chemists aren't all screwballs, philosophers can come down to earth and social scientists are human.

My own experience in team teaching with Dennis O'Connor serves a good tangible example. For the first six months the other partner did not seem to make sense. Our world views were so different we couldn't see how his response was related to our own statements. We were alienated (fear, mistrust) by reason of our different yet similar languages. After a time we learned some of the other language and began to realise the other was human and had a valid academic viewpoint and teaching method.

Keeping the faculties of science and arts separate would lose the benefits of teaching together, defining curricula together, meeting at committees together. It may be more efficient to segregate the faculties but this is a false efficiency for we will continue to solve the question of educating scientists as scientists which is challenging enough in itself but we will evade the question of educating scientists as humanists and vice versa which is more difficult but more necessary. In this way not only will we be 'different to McGill' but we will confidently be able to say 'better than McGill'.

MH/ka

ACADIA	- Arts	Science	
ALBERTA	- Arts	Science	
BISHOPS	- Humanities	Natural Sciences	Social Sciences
BRANDON	- Arts	Science	
B.C.	- Arts	Science	
BROCK	- Arts and Science		
CALGARY	- Arts and Science		
CARLETON	- Arts (Division I & II)	Science	
DALHOUSIE	- Arts and Science		
GUELPH	- Arts, Social Science, Biological Science, Physical Science		
LAKEHEAD	- Arts	Science	
LAURENTIAN	- Humanities	Science	Social Science
LAVAL	- Arts	Science	
MANITOBA	- Arts	Science	
MCGILL	- Arts	Science	
McMASTER	- Humanities	Social Sciences	Science
MEMORIAL	- Arts	Science	
MONCTON	- Arts	Science	
U of M	- Arts and Science		
Mt. A.	- Arts and Science		
U.N.B.	- Arts	Science	
OTTAWA	- Arts	Sciences et genie	
P.E.I.	- Arts	Science	
QUEEN'S	- Arts and Science		
R.M.C.	- Arts	Science	
St. F.X.	- Arts and Science		
St. MARY'S ✓	- Arts	Science	
SASKATCHEWAN	- Arts and Science (both campuses)		
SHERBROOKE	- Arts	Science	
SIMON FRASER	- Arts	Science	
TORONTO	- Arts and Science		
TRENT	- Arts and Science		
VICTORIA	- Arts and Science		
WATERLOO	- Arts	Science	
WESTERN	- Arts	Science	
WINDSOR	- Arts and Science		
WINNIPEG	- Arts and Science		
YORK	- Arts	Science	

SEPARATE - 25

COMBINED - 13

Source: AUCC Annual Catalogue, 1974.

/am

RECOMMENDATIONS - A RESTATEMENT

1. That the SGW Departments of Biological Sciences, Chemistry, Geology, Mathematics, and Physics be joined with the Loyola Departments of Biology, Chemistry, Geology, Mathematics and Physics, to form a single set of University Departments. X
2. That for each of the departments so established an Advisory Committee be struck, to recommend on the appointment of a Chairman for a term of three years.
3. That for this occasion each Committee be made up of two Loyola and two Sir George full-time faculty members from the discipline concerned, and one student from each campus, with its chairman appointed by the Vice-Rector, Academic.
4. That each Committee recommend to the Vice-Rector, Academic on the appointment of a Department Chairman from among the full-time members of the merged department.
5. That no further candidates be accepted to the Ph.D. program in Physics. X
6. That the Ph.D. program in Chemistry be retained. X
7. That the overall space assigned to Science be established at 120% of the norm, i.e. reduced to 123,000 sq. ft. That the reduction (of about 26,000 sq. ft.) be primarily on the SGW campus, where the shortage for the other Faculties is felt most acutely.
8. That research and graduate programs in Biology and Chemistry be concentrated in the Hall Building.
9. That the day undergraduate programs in Geology and Physics be concentrated on the Loyola campus.
10. That some evening and service courses in Physics and Geology continue to be available on the SGW campus along with essential, non transferable, specialized research facilities in Physics.

11. That the graduate and research programs in Physics be moved to the Loyola campus to the extent that, and as soon as, facilities can be organized to that end.
12. That the merged Department of Mathematics be provided with adequate space for its undergraduate and graduate mission, preferably on the Loyola campus, and within the total assigned space in Rec. 7. 2
13. That the Commerce component of the Loyola Computer Science offerings be transferred to the Faculty of Commerce and Administration. X
14. That the Department of Computer Science in the University Faculty of Engineering be instructed to provide the appropriate range of courses, on the Loyola campus, to students in Arts and in Science. X
15. That the members of the faculty of the Loyola Department of Computer Science become members of the Faculty of Commerce and Administration, or of the Department of Computer Science in the Engineering Faculty, as the case may be, in accordance with the primary interest of each of the faculty members concerned.
16. (a) That a single University Faculty of Science, with its own Council and Dean be established; X
or (b) That the Loyola Faculty of Arts and Science, consisting of the current Loyola Departments in Arts and Bio-physical Education, and of the University Departments in Biology, Chemistry, Geology, Mathematics and Physics, be given the responsibility for science on both campuses.
17. (a) That, should Recommendation 16 (a) be adopted, a Faculty Dean be chosen upon recommendation of a Search Committee, established for this occasion with an equal membership of Loyola and Sir George Williams Science faculty members, and an equal number of students from each campus, and that the Committee be instructed to search widely, both inside and outside the University, for a suitable candidate.

17. (b) That should Recommendation 16 (b) be adopted, the Rector give special consideration to the preceding paragraph. (See p. 15)
18. That the Rector give early consideration to the question raised by the existence of duplicate Arts departments. X

16 + 18
1
13 + 14
5 + 6
7 1
8 - 12
15
2 - 4
17